

REMARKS

This Amendment, submitted in response to the Office Action dated May 13, 2008, is believed to be fully responsive to each point of rejection raised therein. Accordingly, favorable reconsideration on the merits is respectfully requested

1. Overview of Office Action

Claims 1-17 are pending in the present application. Claims 1-5 and 15-16 are withdrawn from further consideration as being drawn to a non-elected invention.

Claims 6, 12, 13 and 17 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Shimada et al. (US 6,378,996; hereafter “Shimada 996”) in view of Joo et al. (US 6,268,258; hereafter “Joo”).

Claims 14 and 17 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Shimada 996 in view of Joo and further in view of Shimada et al. (US 5,802,686; hereafter “Shimada 686”).

Claims 7-11 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Shimada 996.

2. Summary of Amendment

In this Amendment, Applicant amends claims 6-14 and 17 to more clearly define the subject matter.

3. Analysis of Prior Art Rejection

In rejecting claim 6, the Examiner asserts that all the operations of the claimed method are disclosed by Shimada 996 except that the following operation is taught by Joo:

adjusting stress of the insulation film by annealing the insulation film at a temperature less than or equal to a maximum temperature in the thermal oxidation of the zirconium layer.

The Examiner further asserts that it would have been obvious to have modified the method of Shimada 996 by annealing the zirconium oxide as taught by Joo to provide an improved device with a writing process.

Applicant respectfully disagrees.

To begin with, Joo does not teach the above-quoted operation of annealing the insulation film, contrary to the Examiner's assertion citing col. 2, lines 4-17 of the Joo reference.

The cited part of Joo only discloses an operation of forming a dielectric film containing an oxide of zirconium and annealing to crystallize the dielectric film. However, the "dielectric film" here does not correspond to the "insulation film" as recited in the claimed method. This is because, while the "insulation film" is formed to constitute a vibration plate on which a piezoelectric element comprising a lower electrode, a piezoelectric layer and an upper electrode are formed, the "dielectric film" is formed in between the lower and upper electrodes. Thus, the "insulation film" subject to annealing in the claimed method does not correspond, in a structural aspect, to the "dielectric film". Joo may only be alleged to provide an example of annealing a "dielectric film" which does not correspond to any of the layers or films of the actuator device manufactured by the claimed method. The subjects and the purposes of performing thermal treatment are completely different between the "annealing" of Joo and that of the claimed method.

In addition, the claimed method is characterized by forming a zirconium layer for an insulation film; subjecting the zirconium layer to thermal oxidation; and adjusting the stress of the insulation film by annealing at a temperature equal to or below a maximum temperature in the thermal oxidation. However, this characteristic of the claimed method is not taught or suggested by Joo at all.

Therefore, Shimada 996 and Joo, taken alone or in combination, do not teach or suggest all the elements of the claimed method, thereby failing to render the claim obvious.

In the meantime, the Examiner also fails to support how the two references would have been combined to teach or suggest the claimed method. The Court quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 550 U.S. at ___, 82 USPQ2d at 1396.

That being considered, the Examiner simply makes a conclusory statement, without articulated reasoning, that one of ordinary skill in the art would have modified the method of Shimada 996 by annealing the zirconium oxide as taught by Joo to provide an improved device with a writing process.

At least due to the foregoing reasons, Applicant respectfully submits that claim 6 would not have been obvious over Shimada 996 and Joo.

Claims 7-14 and 17 should be allowable at least due to their dependencies and additionally recited elements therein.

4. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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